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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,736	04/21/2004	Tod S. Heiles	200312473-1	4783

22879 7590 11/17/2008
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EXAMINER

LEBRON, JANNELLE M

ART UNIT	PAPER NUMBER
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2861

NOTIFICATION DATE	DELIVERY MODE
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11/17/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/828,736	Applicant(s) HEILES ET AL.	
	Examiner JANNELLE M. LEBRON	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-28,30-36,40-47,49,50,52 and 53 is/are pending in the application.
- 4a) Of the above claim(s) 6-8,18-28,30-36,40-46,49,50,52 and 53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,9-17 and 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 6-8, 18-28, 30-36, 40-46, 49, 50, 52 and 53 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 07/16/2008.

Applicant's election with traverse of Species II in the reply filed on 07/16/2008 is acknowledged. The traversal is on the ground(s) that the species are not mutually exclusive. This is not found persuasive because the species are distinct and contain subject matter that is not shared by the other species, creating a separate embodiment and requiring a separate search.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 20 is objected to because of the following informalities: the limitation "while the first printhead **and the first printhead** is scanned across the medium at a plurality of printing speeds" is unclear and should be rewritten. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 9-17 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gast et al. (US Patent 6,076,915) in view of Nishikori et al. (US Patent 6,832,825).

Gast et al. discloses the following claimed limitations:

- **Claim 1:** a method for calibrating one or more printheads [Abstract], the method comprising:
 - printing a first reference image (solid lines 90 in fig. 5) using a first portion of image forming points of a first printhead (the reference pen);
 - printing a first diagnostic image (dashed lines 92 in fig. 5) using a second portion of image forming points, wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5);
 - detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and
 - determining a compensation value based upon the first optical density (col. 8, lines 33-36).

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- **Claim 9:** wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while the second printhead is at the first horizontal position (when the pattern overlap; both printheads are at the same position).

- **Claim 10:** including:
 - printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position (in pattern 83 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);
 - printing a second diagnostic image with the second portion while the second printhead is at a third horizontal position positively offset from the second horizontal position by a first offset distance (in pattern 83 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85);
 - detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

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- **Claim 11:** wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width (as seen in fig. 5).
- **Claim 12:** wherein the first horizontal position and the second horizontal position have a common location (the solid lines have a specific spacing between them that is the same between patches).
- **Claim 13:** including:
 - printing a third reference image with the first portion while the first printhead is at a fourth horizontal position (in pattern 84 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);
 - printing a third diagnostic image with the second portion while the second printhead and is at a fifth horizontal position positively offset from the fourth horizontal position by a second offset distance greater than the first offset distance (in pattern 84 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and
 - detecting a third optical density of a combination of the third reference image and the third diagnostic image, wherein the compensation value is determined based additionally upon the third optical density (the optical

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density of each patch, horizontal and vertical, with each offset is determined).

- **Claim 14:** wherein the third reference image includes at least one mark, wherein each mark has a width and wherein the third offset distance is less than the width (as seen in fig. 5).
- **Claim 15:** wherein the third horizontal position is offset from the second horizontal position in a first direction and wherein the fifth horizontal position is offset from the third horizontal position in the first direction (as seen in fig. 5).
- **Claim 16:** including:
 - printing a fourth reference image with the first portion while the first printhead is at a sixth horizontal position (in pattern 86 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);
 - printing a fourth diagnostic with the second portion while the second printhead is at a seventh horizontal position negatively offset from the sixth horizontal position by a third distance offset (in pattern 86 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and

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- detecting a fourth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).
- **Claim 17:** including:
 - printing a fifth reference image using the first portion while the first printhead is at an eighth horizontal position (in pattern 87 in fig. 4; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);
 - printing a fifth diagnostic image using the second portion while the first printhead is at a ninth horizontal position negatively offset from the eighth horizontal position by a fourth distance greater than the third distance (in pattern 87 in fig. 4; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and
 - detecting a fifth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- **Claim 47:** a method for calibrating one or more printheads [Abstract], the method comprising:
 - printing a first reference image (solid lines 90 in fig. 5) using a first portion of image forming points of a first printhead (the reference pen);
 - printing a first diagnostic image (dashed lines 92 in fig. 5) using a second portion of image forming points, wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5), wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while the first printhead is at the first horizontal position (when both pattern overlap, the printheads are at the same horizontal position; as seen in fig. 4);
 - detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33);
 - determining a compensation value based upon the first optical density (col. 8, lines 33-36);
 - printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position (in pattern 83 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);
 - printing a second diagnostic image with the second portion while said one of the first printhead and the second printhead is at a third horizontal

- position positively offset from the second horizontal position by a first offset distance (in pattern 83 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85);
- detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

Gast et al. fails to expressly disclose the following claimed limitations:

- **Claims 1 and 47:**
 - printing an image using a second portion of image forming points of the first printhead; and
 - wherein the first portion of image forming points comprises a first segment of a column of image forming points and wherein the second portion comprises a second segment of the column of image forming points on the first printhead.

Nishikori et al. discloses the following claimed limitations:

- **Claims 1 and 47:**
 - printing an image (1 in patch [B] or 5 in patch [F] in fig. 7) using a second portion of image forming points ([b] in fig. 7) of the first printhead; and
 - wherein the first portion of image forming points comprises a first segment of a column of image forming points and wherein the second

portion comprises a second segment of the column of image forming points on the first printhead (as seen in fig. 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Gast et al. invention to include means for printing an image using a second portion of image forming points of a first printhead, wherein the first portion of image forming points comprises a first segment of a column of image forming points and wherein the second portion comprises a second segment of the column of image forming points on the first printhead as taught by Nishikori et al. for the purpose of determining optical densities for a plurality of locations of the printhead and calibrating the printhead to obtain a better quality.

Response to Arguments

5. Applicant's arguments filed 02/19/2008 have been fully considered but they are not persuasive.

6. Regarding applicant's argument that "Nishikori merely discloses a method for adjusting the amount of ink ejected by nozzles based upon the detected density of a pattern of printhead patches", please note that such method conveys a calibration of one or more printhead which is what is being claimed. The same reasoning applies to applicant's argument that "the motivation cited is not applicable to Nishikori."

7. Regarding applicant's argument that "Gast is not directed to calibrating segments of a column of image forming points on a printhead", please note that one cannot show nonobviousness by attacking references individually where the rejections are based on

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combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

8. Regarding applicant's argument that "Nishikori and Gast are not even remotely related", please note that both inventions deal with calibrating one or more printheads using a reference and a diagnostic pattern and detecting optical densities.

9. Regarding applicant's argument that "the alleged modification of Nishikori based upon Gast would destroy the principle of operation and the intended functioning of Nishikori", please note that in the new Office Action Nishikori is merely used to teach that printing an image using a second portion of image forming points is well known in the art before the present invention and that the entire reference is taken into consideration at the time of examination.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jannelle M. Lebron whose telephone number is (571) 272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jannelle M. Lebron/
Examiner, Art Unit 2861

/K. Feggins/
Primary Examiner, Art Unit 2861